

# COMMONWEALTH OF AUSTRALIA

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Family Name	
Given Names	
Student Number	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Teaching Period	Semester 2, 2015

FINAL EXAMINATION	DURATION
MLS101 – Haematology 1	
	Reading Time: 10 minutes
	Writing Time: 120 minutes

### INSTRUCTIONS TO CANDIDATES

Section A should be answered on the Answer Sheet provided. Please ensure that your name and student number have been written on the Answer sheet and place in the completed answer Booklet.

Section B should be answered in separate booklets.

Questions are NOT of equal value see each question for mark allocation.

### EXAM CONDITIONS

This is a CLOSED BOOK examination

Any non-programmable calculator is permitted

No handwritten notes are permitted

No dictionaries are permitted

Answer on the supplied examination material/s only

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	1 x 20 Page Book Faculty/School Multiple Choice Answer Sheet

**THIS EXAMINATION IS PRINTED  
DOUBLE-SIDED.**

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## **Section A**

### **Multiple Choice Questions**

**Total No of Marks for this section: fifty (50)**

This section should be answered on the Answer Sheet provided. Please ensure that your name and student number have been written on the Answer sheet and place in the completed answer Booklet.

Each question is worth 1 mark. Suggested Time allocation for Section A: 50 minutes

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**Section B**  
**Short answer**  
**Total Number of marks for this section: Fifty (50)**

This section should be answered in separate booklets.  
Questions are NOT of equal value see each question for mark allocation.

Suggested Time allocation for Section B: 70 minutes

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**Question 1**

- (a) Draw the coagulation cascade, showing the extrinsic, intrinsic and common pathway. [5 marks]
- (b) What activates the intrinsic pathway?
- (c) What activates the extrinsic pathway? [1 mark]

**Question 2**

- Explain the mechanism of action of
- (a) Heparin.
- (b) Warfarin [4 marks]

**Question 3**

- Describe what happens in platelet adhesion, activation and aggregation? [3 marks]

**Question 4**

- The 2 types of granules present in platelets are \_\_\_\_\_ and \_\_\_\_\_ - granules. [1 mark]

### **Question 5**

The primary regulator hormone of thrombopoiesis is \_\_\_\_\_. [1 mark]

### **Question 6**

Describe six maturation changes that occur as a neutrophil develops from a myeloblast to a mature segmented neutrophil? [3 marks]

### **Question 7**

Organisations involved in laboratory standards and accreditations in Australia include RCPA, NATA and NPAAC. What do the following abbreviations stand for?

- i. RCPA
- ii. NATA
- iii. NPAAC

[1.5marks]

### **Question 8**

State 3 important features of a good quality laboratory result. [1.5 marks]

### **Question 9**

Laboratory errors are costly. Briefly explain this statement. [2 marks]

### **Question 10**

Draw the life cycle of malaria as it occurs in HUMANS.

Include the following in your diagram:

- (a) The names of each stage of maturation. [6 marks]
- (b) The two locations of maturation within the human host. [2 marks]
- (c) The names of each cycle occurring within the human host [2 marks]
- (d) The dormant stage that can occur in *P.vivax* and *P.ovale*. [1 marks]

### Question 11

Refer to the image below.



The arrow is pointing to a malarial parasite.

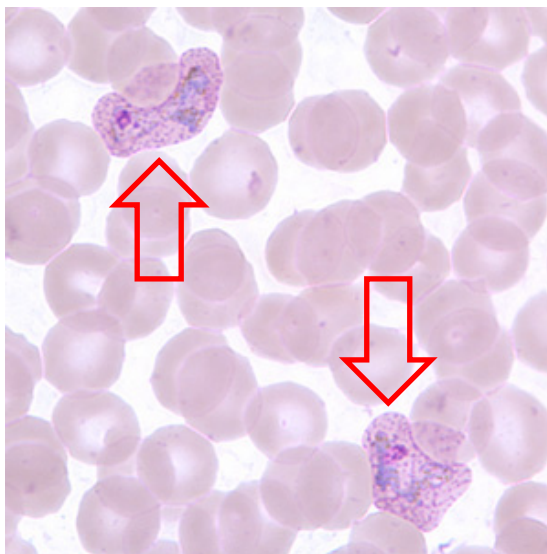
(a) Name the species.

(b) Name the stage of maturation.

[2 marks]

### Question 12

Refer to the image below:



The arrow is pointing to a malarial parasite.

(c) Name the species.

(d) Name the stage of maturation.

[2marks]

### **Question 13**

The table below summarise the differences between 3 stages in the maturation of red cells. Fill in the 4 blank spaces with a Yes or No as appropriate.

	Normoblast	Reticulocyte	Mature Red Cell
Contains nuclear DNA	Yes		No
Contains cytoplasmic RNA	Yes		No
Is present in normal bone marrow	Yes	Yes	
Is present in normal peripheral blood	No		Yes

[2 marks]

### **Question14**

Define the following:

- (a) Cell mediated immunity.
- (b) Humoral immunity.

[2 marks]

### **Question15**

The following are full blood count results for a 15yr old female.

WBC             $9.0 \times 10^9/\text{L}$   
RBC             $4.2 \times 10^{12}/\text{L}$   
Haemoglobin 130 g/L

White Cell differential  
Segmented Neutrophils            76%  
Lymphocytes                            15%  
Monocytes                                5%  
Eosinophils                               3%  
Basophils                                 1%  
Nucleated red cells                   8 /100 WBC

- (a) Show the formula to calculate a corrected white cell count.
- (b) Show the formula to calculate absolute values.

[2 marks]



Calculate the following:

- (c) Corrected White cell count.
- (d) Absolute values for each of the types of white cells.

[6 marks]

## **END OF SECTION B**

**You have completed the test. Please place the multiple choice questions answer sheet that you used for Section A inside the answer booklet. Please ensure that your name and student number are clearly indicated on your Answer Sheet and at the top of this examination paper.**